B-1B Flies into 21st Century

By LtCol Arnold Bunch
B-1 System Program Office

WRIGHT-PATTERSON AIR FORCE BASE, Ohio, October 27, 1998—Men and women from the B-1B System Program Office, here, recently completed a highly successful year 2000 (Y2K) demonstration on the B-1B at the Birk Flight Test Facility at Edwards Air Force Base, Calif. The B-1B SPO's highly successful Y2K demonstration, a service first, is a major Air Force milestone.

The B-1B Y2K compliance team was comprised of contractor and government personnel from the B-1B System Program Office, here; the Boeing Company; the 419th Flight Test Squadron (FLTS), Edwards Air Force Base, Calif.; and the 46th Test Group (TG), Holloman Air Force Base, New Mexico. The team's primary objective was to answer questions of the computer systems' ability to successfully transition to the year 2000 once we reach the new millennium. A secondary objective of the demonstration was to verify the validity of the Y2K compliance certifications already completed on B-1B subsystems.

Y2K is a big concern today for the commercial, as well as, governmental sectors of America. The concern centers on the ability or inability of today's computers to make a smooth transition into the year 2000. Many computer programs were developed with two placeholders/digits to represent year information. For example, if only two placeholders are available, 1998 will be reported simply as 98. When the date changes from Dec. 31, 1999 to Jan. 1, 2000, will the computer in question understand it is 2000 or will it report 1900? When dealing with the many high tech, software dependent weapon systems of the Air Force, the question boils down to: "Can they support the warfighter and accomplish their mission following the turn of the century?"

The B-1B demonstration consisted of ground and flight test segments. The most extensive testing was accomplished on the ground where dates of Global Positioning System (GPS) and Y2K rollover significance were tested. Some of the tested scenarios included Dec. 31, 1999 to Jan. 1, 2000; Feb. 28 to 29, 2000; and GPS Almanac/week rollovers. The ground testing was accomplished with the assistance of 46th TG, the GPS user equipment testing agency. They provided equipment capable of simulating the GPS satellite constellation, which allowed realistic testing of different dates with most aircraft systems operating. The ground test was conducted using procedures developed by Boeing in conjunction with 419th FLTS. The ground testing culminated with a Joint Direct Attack Munition (JDAM) simulated launch. This test ensured the proper mission data were passed to the weapon from the aircraft to initiate a weapons release following a Dec. 31, 1999, to Jan. 1, 2000, rollover.

Following the successful ground test segment, the flight segment focused on overall B-1B system operation. The B-1B actually flew its demonstration mission October 23, 1998, but the mission clock was rolled forward to 11 October 2000. This in-flight clock roll forward culminated the week-long B-1B Y2K compliance demonstration at the test facility. During the demonstration flight the date was changed, while flying, to Feb. 29, 2000. The demonstration

included a weapons release, terrain following, navigation legs and operation of B-1B systems. Systems were monitored throughout the flight, and the 419th FLTS crew noted no anomalies in system performance. The flight test aircraft configuration was operationally representative.

As the B-1B is the first major weapon system accomplishing an end-to-end test demonstrating Y2K compliance, the shared lessons learned from this endeavor will make it easier for other Air Force weapon systems tasked to accomplish similar demonstrations.

This demonstration clearly indicates the Air Force is serious about Y2K and should alleviate Y2K concerns relative to Air Force mission capability following the turn of the century. BOTTOM LINE: The Air Force and B-1B, as always, stand ready to fulfill their roles and missions defending the freedoms of this nation into the 21st Century.